

QVQLVQSGAEVKKPGASVKVSCKASGYTFTGYWIEWVRQAPGQGLEWMGEI
LPGSGTTNYNEKFKGRVTMTRDTSTSTVYMELSSLRSEDTAVYYCARADYYGS
DYVKFDYWGQGTLVTVSS

FIG. 1A

DIQMTQSPSSLSASVGDRVTITCKASQHVGTHVTWYQQKPGKAPKLLIYSTSY
RYSGVPSRFSSGSGSGTDFTLTISSLQPEDFATYYCQHFYSYPLTFGGGTKVEIK

FIG. 1B

QVQLVQSGAEVKKPGASVKVSCKASGYTFTGYWIEWVRQAPGQGLEWMGE
WLPSGSGTTNYNEKFKGRVTMTRDTSTSTVYMELSSLRSEDTAVYYCARADYY
GSDYVKFDYWGQGTLVTVSS

FIG. 2A

DIQMTQSPSSLSASVGDRVTITCKASQHVGTHVTWYQQKPGKAPKLLIYSTSY
RYSGVPSRFSSGSGSGTDFTLTISSLQPEDFATYYCQHFYSYPLTFGGGTKVEIK

FIG. 2B

QVQLVQSGAEVKKPGASVKVSCKASGYTFTYYWIEWVRQAPGQGLEWMGEWL
PGSGTTNYNEKFKGRVTMTRDTSTSTVYMELSSLRSEDTAVYYCARADYYGSD
HVKFDYWGQGTLVTVSS

FIG. 3A

DIQMTQSPSSLSASVGDRVTITCASQHVGTHVTWYQQKPGKAPKLLIYGTSY
RYSGVPSRFSGSGSGTDFTLTISLQPEDFATYYCQHFYDYPLTFGGGGTKVEIK

FIG. 3B

QVQLVQSGAEVKKPGASVKVSCKASGYTFTGYWIEWVRQAPGQGLEWMGE
WLPPGSGTTNYNEKFKGRVTMTRDTSTSTVYMELSSLRSEDTAVYYCARADYY
GSDHVKFDYWGQGTLVTVSS

FIG. 4A

DIQMTQSPSSLSASVGDRVTITCKASQHVGTHVTWYQQKPGKAPKLLIYGTSY
RYSGVPSRFSGSGSGTDFTLTISLQPEDFATYYCQHFYEYPLTFGGGGTKVEIK

FIG. 4B

QVQLVQSGAEVKKPGSSVKVSCKASGGTFSGYWIEWVRQAPGQGLEWMGEI
LPGSGTTNYNEKFKGRVTITADESTSTAYMELSSLRSEDTAVYYCARADYYGS
DYVKFDYWGQGTLVTVSS

FIG. 5A

DIQMTQSPSSLSASVGDRVTITCKASQHVGHVTVWYQQKPGKAPKLLIYSTSY
RYSGVPSRFSGSGSGTDFTLTISLQPEDFATYYCQQFYEYPLTFGGGGTKVEIK

FIG. 5B

QVQLVQSGAEVKKPGSSVKVSCKASGGTFSGYWIEWVRQAPGQGLEWMGEI
LPGSGTTNPNEKFKGRVTITADESTSTAYMELSSLRSEDTAVYYCARADYYGS
DYVKFDYWGQGTLVTVSS

FIG. 6A

DIQMTQSPSSLSASVGDRVTITCKASQHVGHVTVWYQQKPGKAPKLLIYSTSY
RYSGVPSRFSGSGSGTDFTLTISLQPEDFATYYCQQFYEYPLTFGGGGTKVEIK

FIG. 6B

QVQLVQSGAEVKKPGSSVKVSCKASGGTFSGYWIEWVRQAPGQGLEWMGEI
LPGSGTTNYNEKFKGRVTITADESTSTAYMELSSLRSEDTAVYYCARADYYGS
DYVKFDYWGQGTLVTVSS

FIG. 7A

DIQMTQSPSSLSASVGDRVTITCKASQHVGTHVTWYQQKPGKAPKLLIYGTSY
RYSGVPSRFSGSGSGTDFTLTISSLPEDFATYYCQQFYEYPLTFGGGGTKVEIK

FIG. 7B

QVQLVQSGAEVKKPGSSVKVSCKASGGTFSYYWIEWVRQAPGQGLEWMGEI
LPGSGTTNPNEKFKGRVTITADESTSTAYMELSSLRSEDTAVYYCARADYYGS
DYVKFDYWGQGTLVTVSS

FIG. 8A

DIQMTQSPSSLSASVGDRVTITCKASQHVITHVTWYQQKPGKAPKLLIYGTS
YSYSGVPSRFSGSGSGTDFTLTISSLPEDFATYYCQQFYEYPLTFGGGGTKVEIK

FIG. 8B

7F3com-2H2 V_H

```

1   CAGGTGCAG CTGGTGCAG TCTGGGGCT GAGGTGAAG AAGCCTGGG
46  TCCTCAGTG AAGGTTTCC TGCAAGGCA TCTGGAGGC ACCTTCAGC
91  TATTACTGG ATAGAGTGG GTGCGACAG GCCCCTGGA CAAGGGCTT
136 GAGTGGATG GGAGAGATT TTACCTGGA AGTGGTACT ACTAACCCG
181 AATGAGAAG TTCAAGGGC AGAGTCACC ATTACCGCG GACGAATCC
226 ACGAGCACA GCCTACATG GAGCTGAGC AGCCTGAGA TCTGAGGAC
271 ACGGCCGTG TATTACTGT GCGAGAGCG GATTACTAC GGTAGTGAT
316 TACGTCAAG TTTGACTAC TGGGGCCAA GGAACCCTG GTCACCGTC
361 TCCTCA

```

FIG. 9A

7F3com-2H2 V_L

```

1   GACATCCAG ATGACCCAG TCTCCATCC TCCCTGTCT GCATCTGTA
46  GGAGACAGA GTCACCATC ACTTGCAAG GCAAGTCAG CATGTGATT
91  ACTCATGTA ACCTGGTAT CAGCAGAAA CCAGGGAAA GCCCCTAAG
136 CTCCTGATC TATGGGACA TCCTACAGC TACAGTGGG GTCCCATCA
181 AGGTTCAGT GGCAGTGGA TATGGGACA GATTTCACT CTCACCATC
226 AGCAGTCTG CAACCTGAA GATTTTGCA ACTTATTAC TGTGAGCAA
271 TTTTACGAG TATCCTCTC ACGTTCGGC GGAGGGACC AAGGTGGAG
316 ATCAAA

```

FIG. 9B

QVQLVQSGAEVKKPGSSVKVSCKASGGTFSGYWIEWVRQAPGQGLEWMGEI
LPSGGTTNPNEKFKGRVTITADESTSTAYMELSSLRSED TAVYYCARADYYGS
DYVKFDYWGQGTLVTVSS

FIG. 10A

DIQMTQSPSSLSASVGDRVTITCKASQHVGHV VTWYQQKPGKAPKLLIYGTSY
RYSGVPSRFSGSGSGTDFTLTISSLQPEDFATYYC QQFYEYPLTFGGGTKVEIK

FIG. 10B

QVQLVQSGAEVKKPGSSVKVSCKASGGTF SYWIEWVRQAPGQGLEWMGEI
LPSGGTTNPNEKFKGRVTITADESTSTAYMELSSLRSED TAVYYCARADYYGS
DYVKFDYWGQGTLVTVSS

FIG. 11A

DIQMTQSPSSLSASVGDRVTITCKASQHVITHV VTWYQQKPGKAPKLLIYGTSY
RYSGVPSRFSGSGSGTDFTLTISSLQPEDFATYYC QQFYEYPLTFGGGTKVEIK

FIG. 11B

Accession No. NM_000590

```
1   ccgctgtcaa gatgcttctg gccatgggcc ttacctctgc cctgctcctg tgctccgtgg
61  caggccaggg gtgtccaacc ttggcgggga tcttggacat caacttcctc atcaacaaga
121 tgcaggaaga tccagcttcc aagtgccact gcagtgctaa tgtgaccagt tgtctctgtt
181 tgggcattcc ctctgacaac tgcaccagac catgcttcag tgagagactg tctcagatga
241 ccaataccac catgcaaaca agataccac tgattttcag tcgggtgaaa aaatcagttg
301 aagtactaaa gaacaacaag tgtccatatt tttcctgtga acagccatgc aaccaaacca
361 cggcaggcaa cgcgctgaca tttctgaaga gtcttctgga aattttccag aaagaaaaga
421 tgagagggat gagaggcaag atatgaagat gaaatattat ttatcctatt tattaaattt
481 aaaaagcttt ctctttaagt tgctacaatt taaaaatcaa gtaagctact ctaaatacgt
541 atcagttgtg attatttggt taacattgta tgtctttatt ttgaaataaa t
```

FIG. 12

Accession No. A60480

1 mllamvltsa lllcsvagqg cptlagildi nflinkmqed paskchcsan vtscclclgip
 61 sdncrtrpcfs erlsqmnttt mqtryplifs rvkksvevlk nnkcpyfsce qpcnqttagn
 121 altfikslle ifqkekrmrgm rgki

Accession No. NP_000584

1 maellasags acswdfprap psfpppaasr gglggtrsfr phrgaesprp grdrdgvrvp
 61 massrcpapr gcrcclpgasl awlgtvlill adwvllrtal prifsllypt alpllrwvav
 121 glsrwavlwl gacgvlrattv gsksenagaq gwlaalkpla aalglalpgl alfreliwsg
 181 apgsadstrl lhwgshptaf vvsyaaalpa aalwhklgsi wvpgggqggsg npvrrllgcl
 241 gsetrrlsif lvlvvlsslq emaipfftgr ltdwilqdgsg adtftrnltl msiltiasav
 301 lefvgdgiyn ntmghvhshl qgevfqavlr qeteffqqnq tgnimsrvte dtstlsdsls
 361 enlsflflwyl vrglcllgim lwgsvsltmv tlitlplllf lpkkvgkwyq llevqvresl
 421 akssqvaiea lsamptvrsf aneegeaqkf reqlqeiktl nqkeavayav nswttsisgm
 481 llkvgilysg gqlvtsgavs sgnlvtfvly qmfftqavev llsiyprvqk avgssekife
 541 yldrtprcpp sglltphle glvqfqdvsf aypnrpdvlv lqglftlrlp gevtalvgpn
 601 gsgkstvaal lqnllyqptgg qllldgkplp qyehrylhrq vaavggqepqv fgrslqenia
 661 ygltqkptme eitaaavksg ahsfisglpq gydtevd eag sqlsggqrqa valaralirk
 721 pcvlilddat saldansqlq veqllyespe rysrvllit qhslslveqad hilfleggai
 781 reggthqqm ekkgcywamv qapadape

Accession No. AAC17735

1 mvltsalllc svagggcptl agildinfli nkmqedpask chcsanvtsc lclgipsdnc
 61 trpccfserls qmtnttmqtr yplifsvkks svevlknnkc pyfsceqpcn qttagnaltf
 121 lksilleifqk ekrmrgmrgki

FIG. 13

Accession No. NM_002186

```
1 agcagctctg taatgcgctt gtggtttcag atgtgggcg cctgtgtgaa cctgtcgtgc
61 aaagctcacg tcaccaactg ctgcagttat ctccatgaatc aggctgaggg tctttgctgt
121 gcacccagag atagttgggt gacaaatcac ctccaggttg gggatgcctc agacttgtga
181 tgggactggg cagatgcac tggaaggct ggaccttga gagtgaggcc ctgaggcgag
241 acatgggcac ctggctcctg gcctgcatct gcatctgcac ctgtgtctgc ttgggagtct
301 ctgtcacagg ggaaggacaa gggccaagg ctagaacctt cacctgcctc accaacaaca
361 ttctcaggat cgattgccac tggctgtccc cagagctggg acagggctcc agccctggc
421 tctctctcac cagcaaccag gctcctggcg gcacacataa gtgcatcttg cggggcagtg
481 agtgcaccgt cgtgctgcca cctgaggcag tgctcgtgcc atctgacaat ttcaccatca
541 ctttccacca ctgcatgtct gggaggagc aggtcagcct ggtggacctg ggtacctgc
601 cccggagaca cgttaagctg gaccgcctt ctgacttgca gagcaacatc agttctggcc
661 actgcatcct gacctggagc atcagtcctg ccttggagcc aatgaccaca cttctcagct
721 atgagctggc cttcaagaag caggaagagg cctgggagca ggcccagcac agggatcaca
781 ttgtcggggg gacctggctt atacttgaag cctttgagct ggacctggc tttatccatg
841 aggccaggct gcgtgtccag atggccacac tggaggatga tgtggtagag gaggagcgtt
901 atacaggcca gtggagttag tggagccagc ctgtgtgctt ccaggctccc cagagacaag
961 gccctctgat cccacctgg ggggtggccag gcaacaccct tgttgctgtg tccatctttc
1021 tectgtgac tggcccgacc tacctcctgt tcaagctgtc gccagggtg aagagaatct
1081 tctaccagaa cgtgccctct ccagcgtatg tcttccagcc cctctacagt gtacacaatg
1141 ggaacttcca gacttgatg ggggcccacg gggccgggtg gctgttgagc caggactgtg
1201 ctggcaccac acaggagacc ttggagccct gcgtccagga ggccactgca ctgctcactt
1261 gtggcccagc gcgtccttgg aaatctgtgg ccctggagga ggaacaggag ggccctggga
1321 ccaggctccc ggggaacctg agctcagagg atgtgctgcc agcagggtgt acggagtgga
1381 gggtaeagac gcttgcttat ctgccacagg aggactgggc cccacgtcc ctgactaggc
1441 eggctcccc agactcagag ggcagcagga gcagcagcag cagcagcagc agcaacaaca
1501 acaactactg tgccttgggc tgctatgggg gatggcaect ctcagccctc ccaggaaaca
1561 cacagagctc tgggcccac ccagccctgg cctgtggcct ttcttgtgac catcaggggc
1621 tggagaccea gcaaggagtt gcctgggtgc tggctgggtc ctgccagagg cctgggctgc
1681 atgaggacct ccagggcag ttgctccctt ctgtcctcag caaggctcgg tctggacat
1741 tctaggtccc tgaactgcca gatgcacat gtccattttg ggaaaatgga ctgaagtctc
1801 tggagccctt gtctgagact gaacctcctg agaaggggcc cctagcagcg gtcagaggtc
1861 ctgtctggat ggaggctgga ggetcccccc tcaaccctc tgctcagtgc ctgtggggag
1921 cagcctctac cctcagcatc ctggccacaa gttcttctt ccattgtccc ttttctttat
1981 ccctgaectc tctgagaagt ggggtgtggg ctctcagctg ttctgcctc atacccttaa
2041 agggccagcc tgggcccagt ggacacaggt aaggcaccat gaccacctgg tgtgacctct
2101 ctgtgcctta ctgaggcac tttctagaga ttaaagggg cttgatggct gttaaaaaaa
2161 aaaaaaaaaa a
```

FIG. 14A

Accession No. NM_176786

```

1  agcagctctg taatgcgctt gtggtttcag atgtgggagg cctgtgtgaa cctgtcgtgc
61 aaagctcact tcaccaactg ctgcagttat ctctgaatc aggtgaggg tctttgtgt
121 gcaccagag atagtgggt gacaaatcac ctccaggtt gggatgcctc agacttgtga
181 tgggactggg cagatgcac tggaagtaa ctgtgcaag aacggacaga cactgctgca
241 gagaacttgc cagggtgtt catgtgtgg ctggtggtt caggctgcac gctccattct
301 aggaagggg ccctcagccc agtcccttgc aggtggacc ttggagagt aggccctgag
361 gcgagacatg ggcacctggc tcctggcctg catctgcac tgcacctgtg tctgttggg
421 agtctctgtc acaggggaag gacaagggcc aaggtctaga acctcacct gcctcacaa
481 caacattctc aggatcgatt gccactggtc tgcccagag ctgggacagg gctccagccc
541 ctggtcctc ttcaccaggc tcctggcgcc acacataagt gcatttgcg gggcagtga
601 tgcaccgtcg tgctgccacc tgaggcagt ctgtgccat ctgacaattt caccatcact
661 ttccaccact gcatgtctgg gaggagcag gtcagcctg tggaccgga gtacctgcc
721 cggagacacg agcaacatca gtctggcca ctgcatcct acctggagca tcagtctgc
781 cttggagcca atgaccacac ttctcagcta tgagctggcc ttcaagaagc aggaaggcc
841 ctgggagcag gccagcaca gggatcacat tgcggggtg acctggctta tacttgaagc
901 ctttgagctg gacctggct ttatccatga ggccaggct cgtgtccaga tggccacact
961 ggaggatgat gtggtagagg aggagcgtta tacaggccag tggagtgagt ggagccagcc
1021 tgtgtgcttc caggctcccc agagacaagg ccctctgate ccacctggg ggtggccagg
1081 caacaccctt gttgtgtgtt ccattcttct cctgtgact ggcccgacct acctcctgtt
1141 caagctgtcg cccagacttg gatgggggcc cacggggccg gtgtgtgtt gaggccaggac
1201 tgtgtggca cccacaggg agccttgagg ccctgcgtcc aggaggccac tgcactgtc
1261 acttgtggcc cagcgctcc ttggaaatct gtggccctgg aggaggaaca ggagggccct
1321 gggaccagge tcccggggaa cctgagctca gaggatgtgc tgccagcagg gtgtacggag
1381 tggagggtac agacgcttgc ctatctgcca caggaggact gggcccccac gtccctgact
1441 aggccggtc cccagactc agagggcagc aggaacagca gcagcagcag cagcagcaac
1501 aacaacaact actgtgcctt gggctgctat gggggatggc acctctcagc cctcccagga
1561 aacacacaga gctctgggcc catcccagcc ctggcctgtg gcctttcttg tgaccatcag
1621 ggcttgaga cccagcaagg agttgcctgg gtgtggctg gtcactgeca gaggcctggg
1681 ctgeatgagg acctccagg catgttgctc ccttctgtcc tcageaaggc tcggtcctgg
1741 acattctagg tccctgact gccagatgca tcatgtcat tttgggaaaa tggactgaag
1801 tttctggagc cttgtctga gactgaacct cctgagaagg ggccttagc agcggtcaga
1861 ggtcctgtct ggtggaggc tggaggctcc cccctcaacc cctctgtca gtgcctgtg
1921 ggagcagcct ctacctcag catcctggcc acaagttctt ccttcattg tccctttct
1981 ttatccctga cctctctgag aagtggggtg tggctctca gctgtctgc cctcatacc
2041 ttaaagggcc agcctgggcc cagtggacac aggtaggca ccatgaccac ctggtgtgac
2101 ctctctgtgc cttactgagg cacctttcta gagattaaaa ggggcttgat ggctgttaaa
2161 aaaaaaaaaa aaaaa

```

FIG. 14B

Accession No. NM_000206

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1 gaagagcaag cgccatgttg aagccatcat taccattcac atccctctta ttcctgcagc
61 tgccccctgct gggagtgagg ctgaacacga caattctgac gcccaatggg aatgaagaca
121 ccacagctga tttcttcttg accactatgc ccactgactc cctcagtgtt tccactctgc
181 ccctcccaga gggttcagtg tttgtgttca atgtcgagta catgaattgc acttggaaca
241 gcagctctga gcccagcct accaacctca ctctgcatta ttggtacaag aactcggata
301 atgataaagt ccagaagtgc agccactatc tattctctga agaaatcact tctggctgtc
361 agttgcaaaa aaaggagatc cacctctacc aaacatttgt tggtcagctc caggaccac
421 gggaaccag gagacaggcc acacagatgc taaaactgca gaatctgggtg atccctggg
481 ctccagagaa cctaacactt cacaactga gtgaatccca gctagaactg aactggaaca
541 acagattctt gaaccactgt ttggagcact tgggtcgagta ccggactgac tgggaccaca
601 gctggactga acaatcagtg gattatagac ataagttctc cttgcctagt gtggatgggc
661 agaaacgcta cacgtttcgt gttcggagcc gctttaaccc actctgtgga agtgctcagc
721 attggagtga atggagccac ccaatccact gggggagcaa tacttcaaaa gagaatcctt
781 tcctgtttgc attggaagcc gtggttatct ctggtggctc catgggattg attatcagcc
841 ttctctgtgt gtatttctgg ctggaacgga cgatgccccg aattcccacc ctgaagaacc
901 tagaggatct tgttactgaa taccacggga acttttcggc ctggagtggg gtgtctaagg
961 gactggctga gagtctgcag ccagactaca gtgaacgact ctgcctcgtc agtgagattc
1021 cccaaaagg aggggccctt ggggaggggc ctggggcctc cccatgcaac cagcatagcc
1081 cctactgggc ccccccattg taaccctaa agcctgaaac ctgaacccca atcctctgac
1141 agaagaacc cagggtcctg tagcctaag tggtaactaa tttccttcat tcaaccacc
1201 tgcgtctcat actcacctca cccactgtg gctgatttgg aattttgtgc cccatgtaa
1261 gcaccccttc atttggaatt cccacttga gaattacct tttgccccga acatgttttt
1321 cttctccctc agtctggccc ttcctttctg caggattctt cctccctccc tctttccctc
1381 ccttctctt tccatctacc ctccgattgt tctgaaccg atgagaaata aagtttctgt
1441 tgataatcat c

```

FIG. 14C

Accession No.: NP_002177

```

1 mglgrciweg wtleasealrr dmgtwillaci cictcvclgv svtgegqgpr srtftcltnn
61 ilridchwsa pelgggsspw llftsnqapg gthkcilrgs ectvvlppea vlvpsdnfti
121 tfhhcmssgre qvslvdpeyl prrhvkldpp sdlqsnissg hciltwsisp alepmttlls
181 yelafkkqee aweqaqhrdh ivgvtwlile afeldpgfih earlrvqmat leddvveeer
241 ytgqwsewsq pvcfqapqrq gplippwgpw gntlvasif llltgptyll fklsprvkri
301 fyqnvpspam ffqplysvhn gnfqtwmgah gagvllsqdc agtpggalep cvqeataallt
361 cgparpwksv aleeeqegpg trlpgnlsse dvlpagctew rvqtlaylpq edwaptsltr
421 pappdsegr sssssssnn nnycalgcyg gwhtsalpgn tqssgpipal acglscdhqg
481 letqgvawv laghcqrpgl hedlqgmllp svlskarswt f

```

Accession No.: NP_789743

```

1 mhlgsncckn gqtlqlrtch gvscgwwfq aarsilgkpp saqslagwtl esealrrdmg
61 twllacitic tcvcclgsvst gegqgprsrtr ftcltnnilr idchwsapel gggsspwllf
121 trllaahisa scgavsapsc chlrrqcschl tispslstta clggsrsaww trstcpgdts
181 nissghcilt wsispalepm ttllsyelaf kkqeeawega qhrdhivgt wlileafeld
241 pgfihearlr vqmatleddv veeerytgqw sewsqpycfq apqrqgplip pwgwpngntlv
301 avsifllltg ptyllfklsr rlgwgtgppv cc

```

Accession No.: NP_000197

```

1 mlkpslpfts llflqlpllg vglntttiltp ngnedttadf flttmptdsl svstlplpev
61 qcfvfnveym nctwnsssep qptnltilhyw yknsdndkvq kcshylfsee itsgcqlqkk
121 eihlyqtfvv qlqdprrr qatqmlklqn lvipwapenl tlhklsesql elnwnnrfln
181 helehlvqyr tdwdhswteq svdyrhkfs1 psvdgqkryt frvrsrfrnpl cgsaqhwsew
241 shpihwgsnt skenpflfal eavvisvgsm gliisllcvy fwlermpri ptlknledlv
301 teyhgnfsaw sgvskglaes lqpdyserrc lvseippkkg algegpgasp cnqhsapywap
361 pcytlkpet

```

FIG. 15

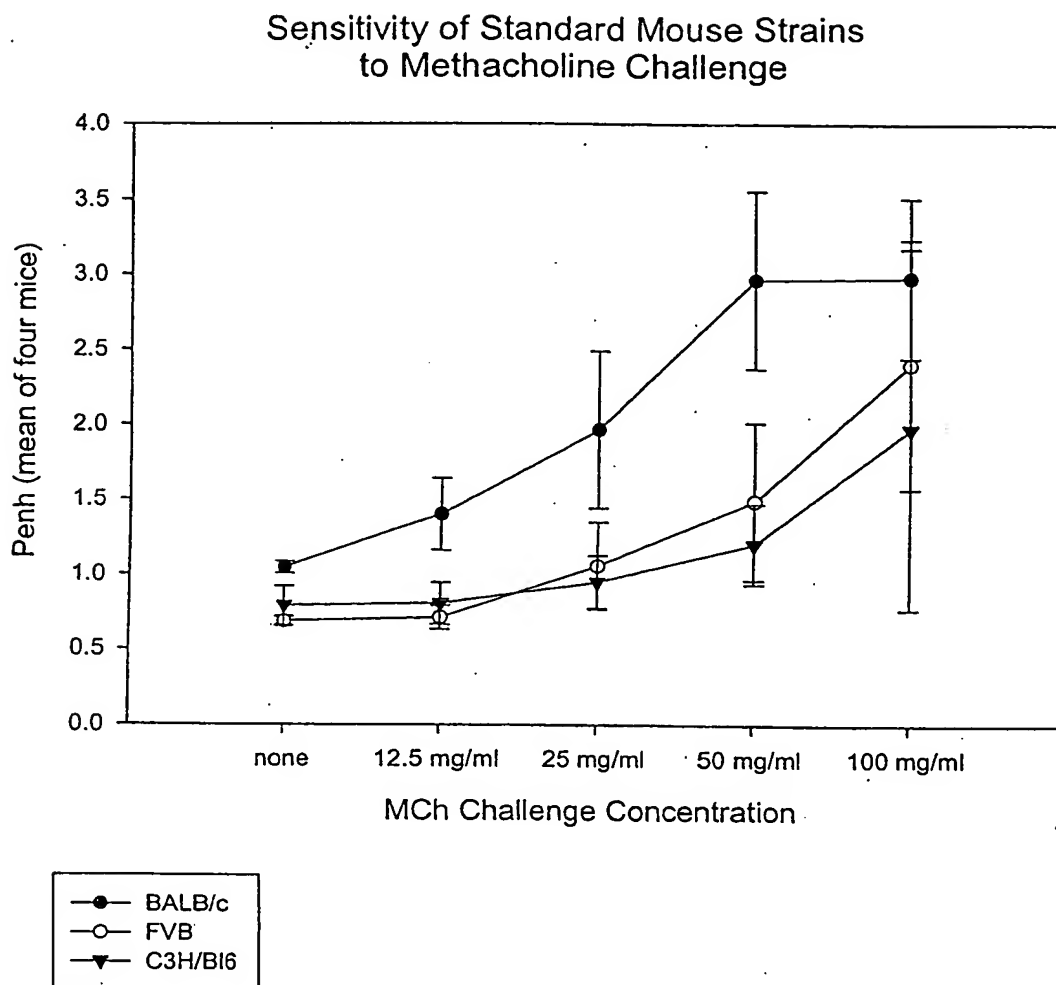


FIG. 16

FVB and Tg5 Sensitivity to Methacholine

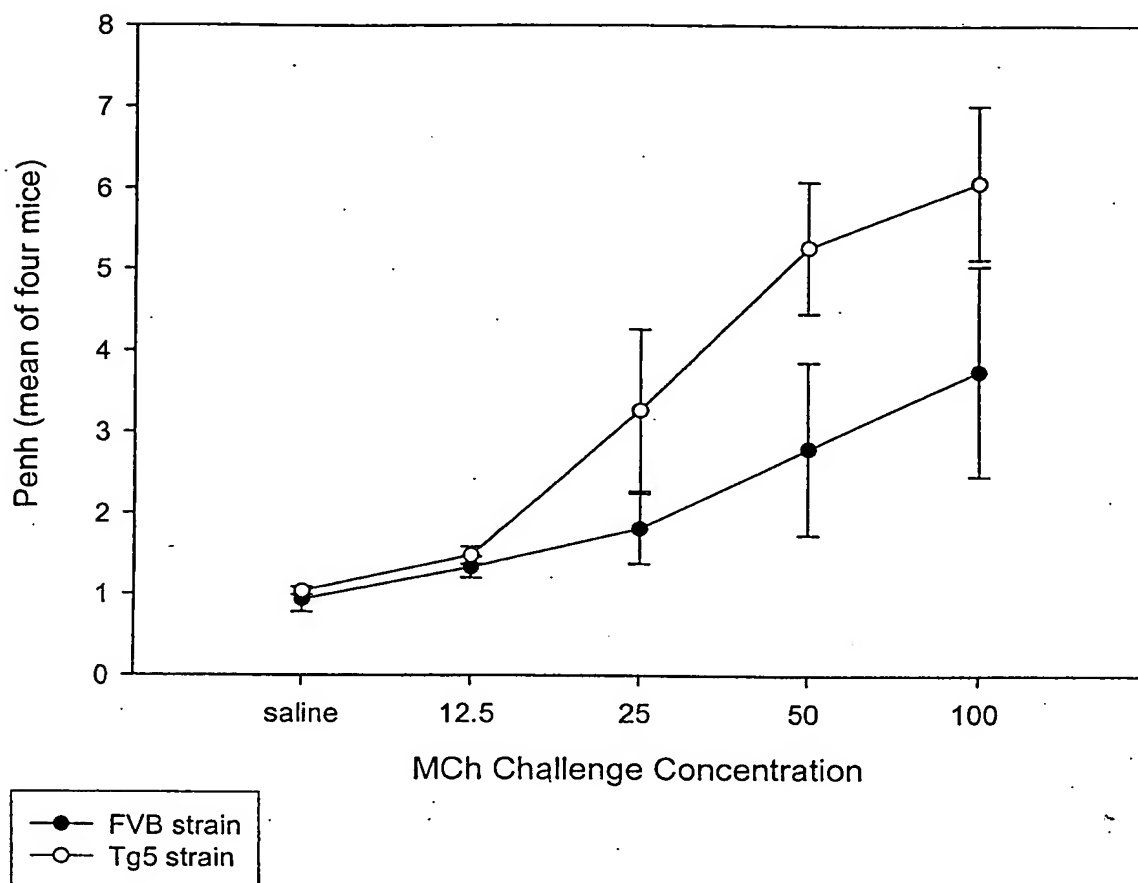


FIG. 17

IL-9 Effects on Penh in BALB/c Mice

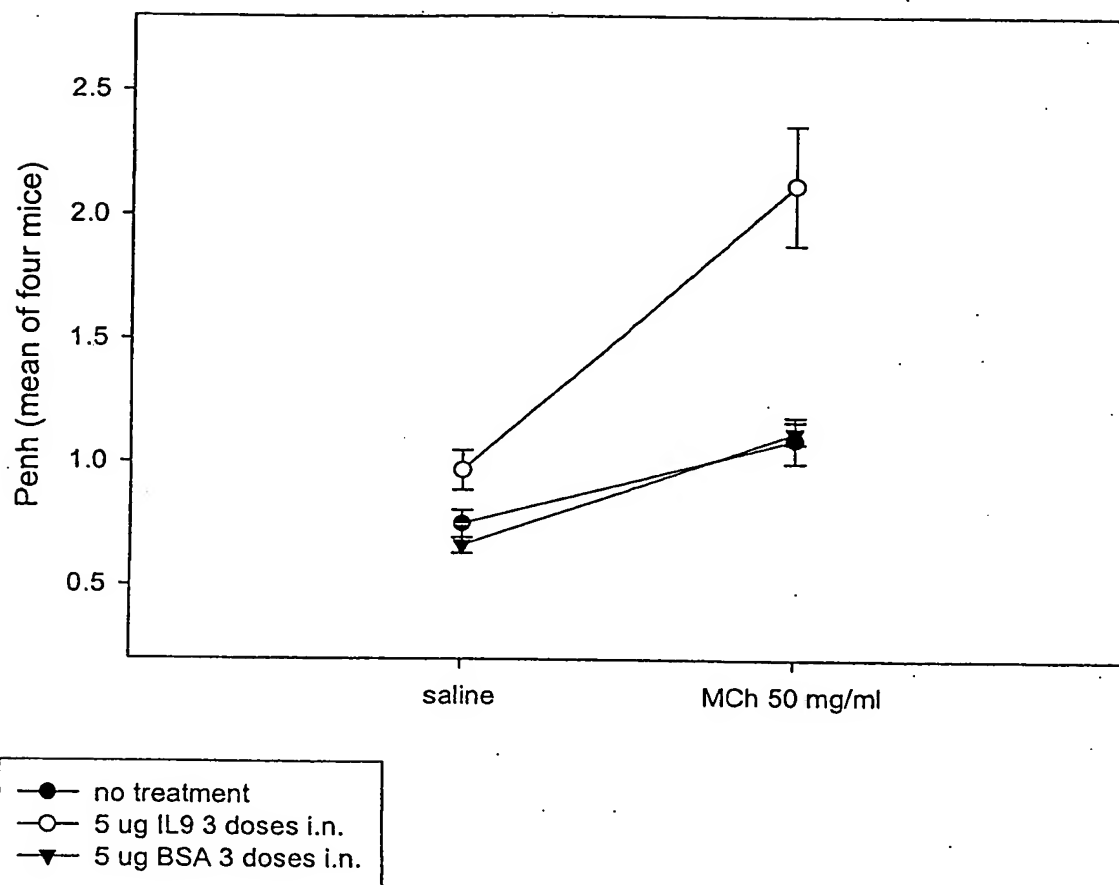


FIG. 18A

IL-9 Effects on Penh in C57Bl/6 Mice

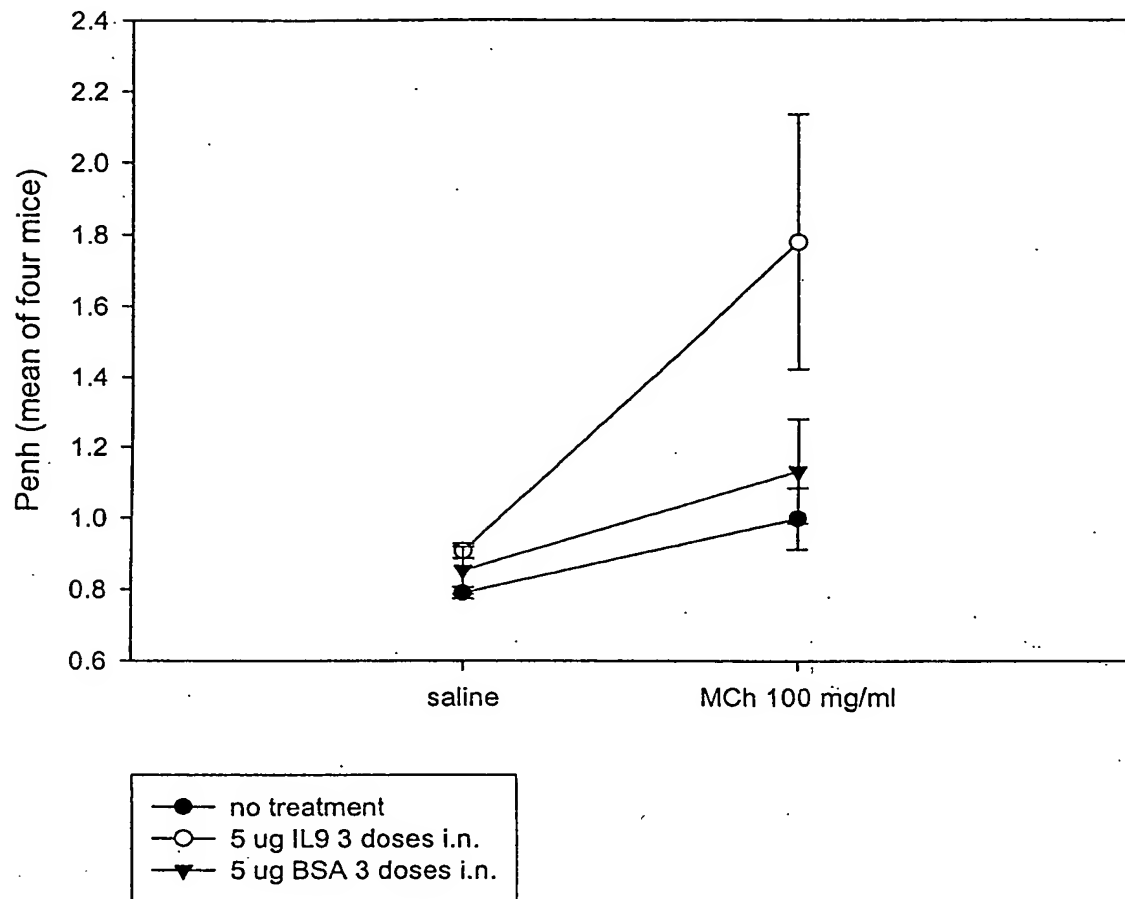


FIG. 18B

D93 Effects on AHR in BALB/c Mice

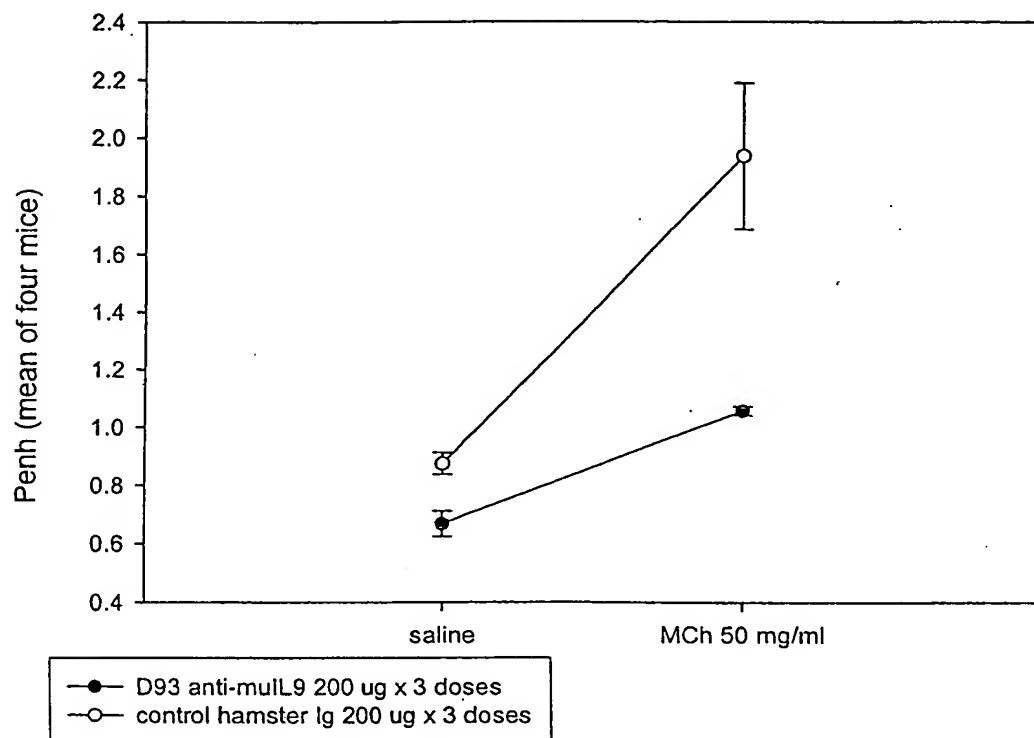


FIG. 19

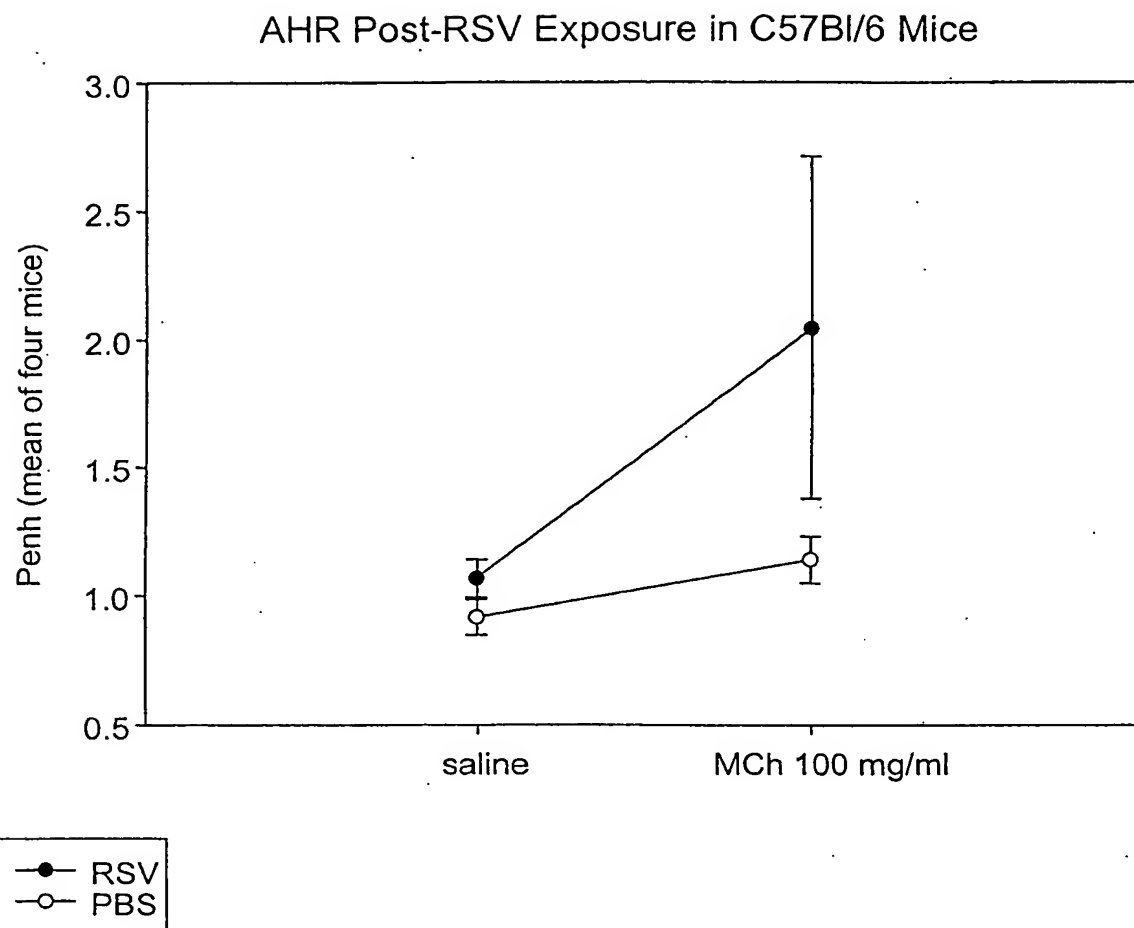


FIG. 20